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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



in cooperation with

Department of Ecology  
State of Washington

# Water Supply Outlook for Washington

as of MARCH 1, 1983

68-3 Rev 1

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## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: Fresh powder snow on Elephant Mountain, near the West Fork of Hyalite Creek, in Montana.

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420-Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# **WATER SUPPLY OUTLOOK FOR WASHINGTON**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued by*

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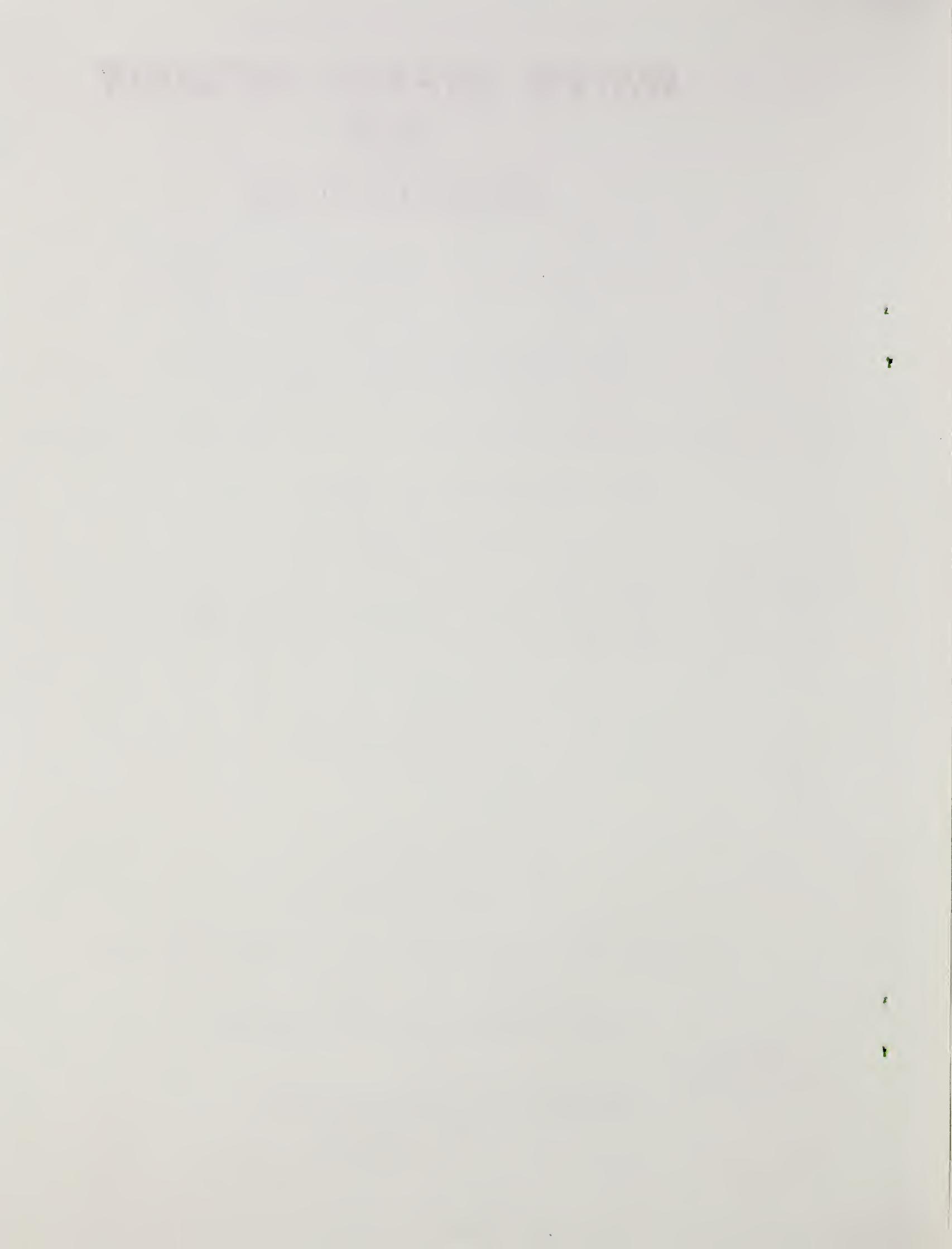
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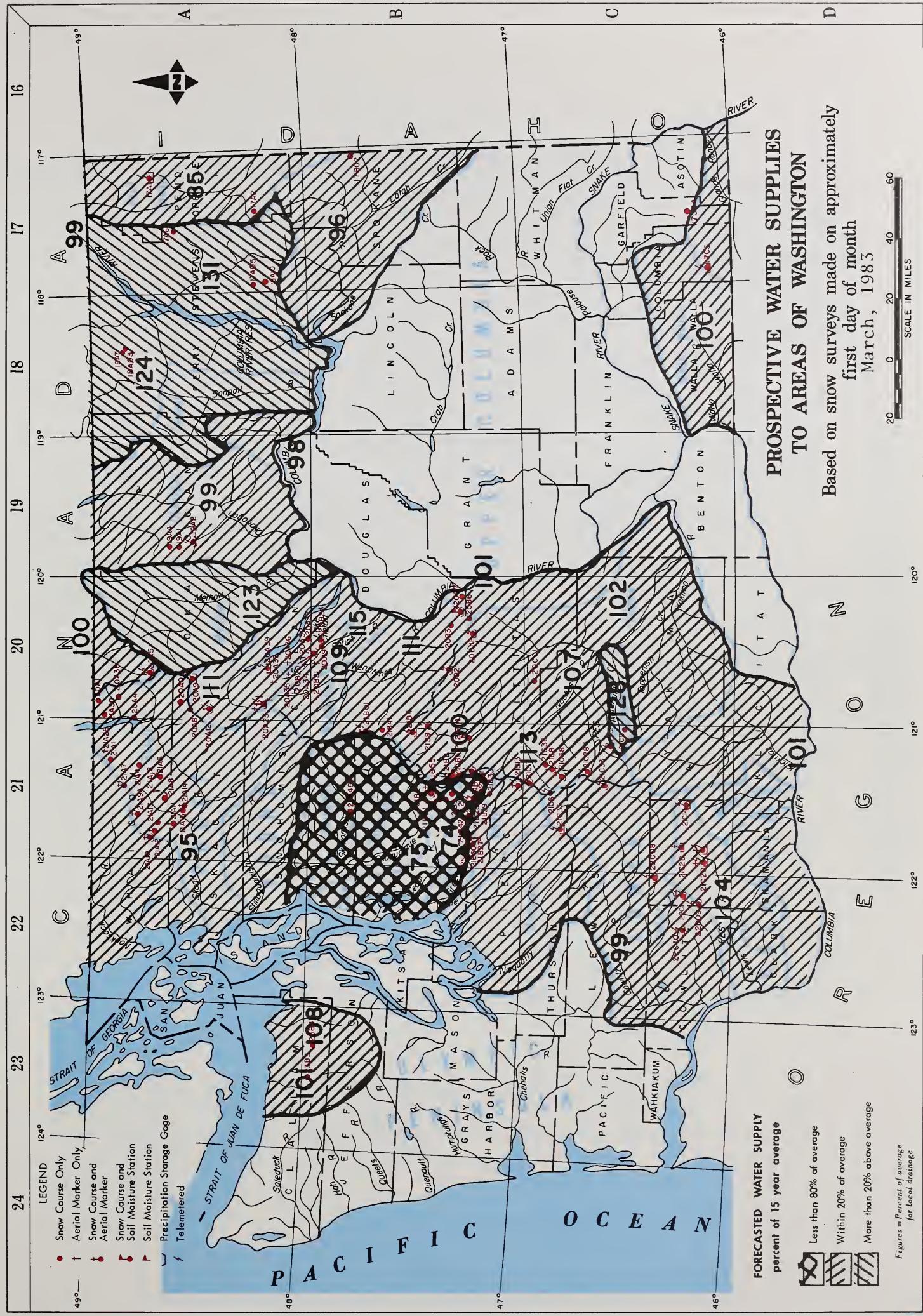
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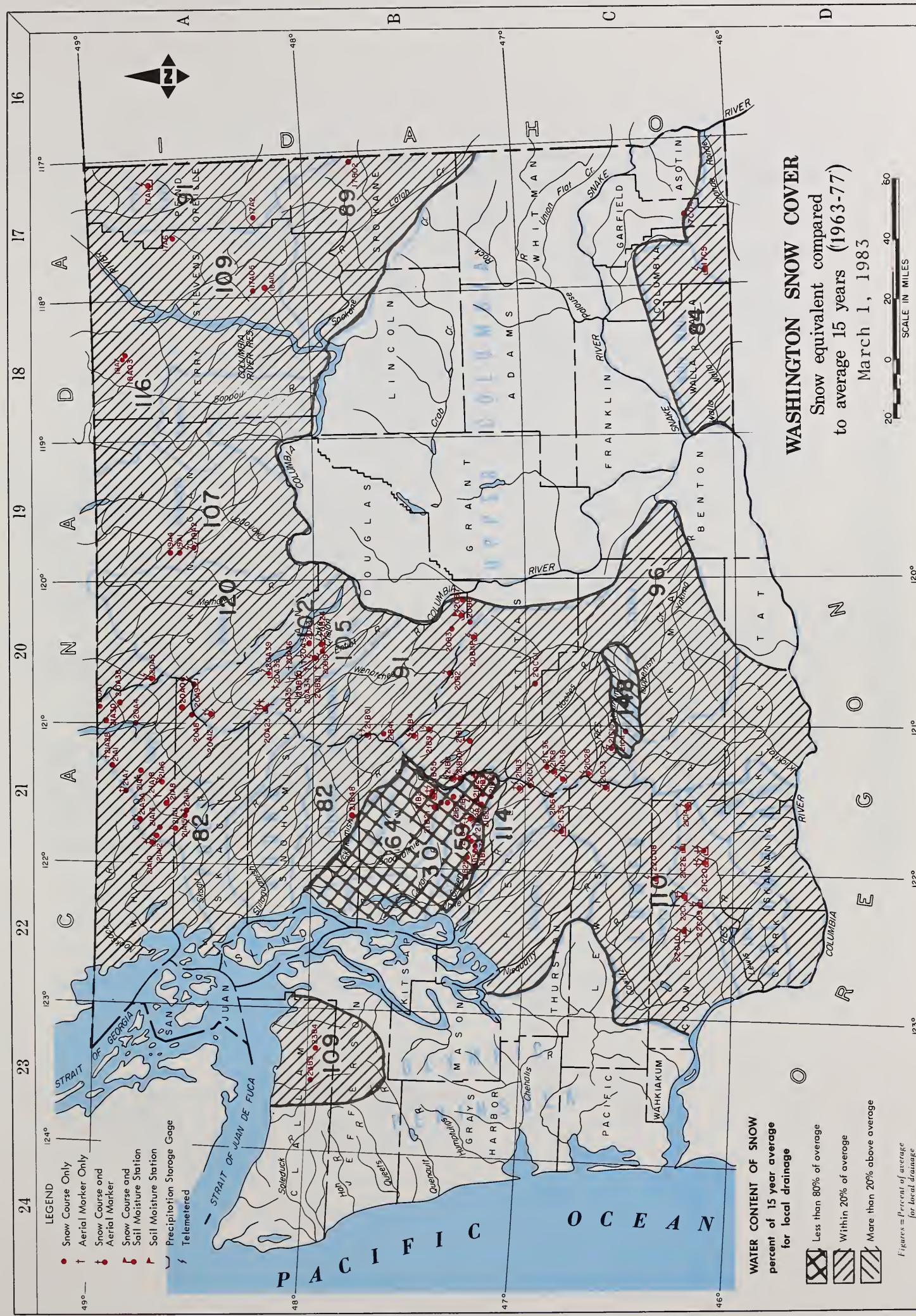
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INDEX to WASHINGTON SNOW COURSES,  
SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES



# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE																	
Pend Oreille River						Spruce Springs						Lower Columbia Drainage					
Boyer Mountain	17A2	7	31N	43E	5250							Asotin Creek					
Bunchgrass Meadow	17A1SP	24	37N	44E	5000							17C4	9	8N	40E	5700	
Kettle River	18A7	20	39N	35E	4600							Touchet Na. 2					
Spokane River	17B02	12	27N	45E	3333							Touchet River	17C5SP	6	7N	40E	5530
Colville River	17A6	19	36N	42E	3215							Lewis River	22C0SP	26	8N	5E	3200
Stranger Mountain	17A5	26	31N	38E	4990							21C26SP	8	9N	7E	3800	
Toga	18A10	6	29N	38E	3370							22C1SP	35	9N	5E	4400	
Okanogan River	19A1	30	37N	24E	5700							21C20SP	16	8N	7E	3400	
Mutton Creek No. 1	19A4	19	37N	24E	5000							21C15SP	14	7N	8E	4250	
Mutton Creek No. 2	19A2SP	33										Cowlitz River	21C6	15	16N	10E	5300
Solomon Meadows												21C33SP	11	13N	11E	5900	
Harts Pass												21C14SP	36	10N	10E	4500	
												22C10SP	12	8N	4E	4050	
												22C08SP	9	10N	6E	3280	
Lyman Lake												Deer Park					
Park Creek Ridge	20A23SP	18	31N	16E	5900							Hurricane	23B3	36	29N	7W	4500
Rainy Pass	20A9SP	21	34N	16E	4600							Elwha River					
Mirror Lake	20A39	30	31N	17E	4780							23B3	36	29N	7W	5200	
ENTIAT RIVER																	
Brief	20819	34	28N	19E	1600							Paradise Park (New)	21C35SP	13	15N	8E	5500
Entiat Meadows	20A33a	28	31N	17E	4540							White River	21B13SP	30	18N	11E	6000
Entiat River Trail	20A34a	2	29N	17E	3325							Green River	21B24P	18	20N	11E	1800
Fox Camp	20A36a	17	30N	18E	6510							21B25P	27	21N	8E	1200	
Pope Ridge	20B20	22	29N	18E	3540							21B27	14	21N	9E	3200	
Pope Ridge Snow Pillow	20B21SP	34	30N	18E	6725							21B28	12	20N	8E	2900	
Pugh Ridge	20A32a	20	29N	19E	6200							21B29	36	20N	10E	2100	
Shady Pass	20A37	21	30N	17E	3910							21B30	22	20N	8E	3100	
Snow Brushy	20A35a	17	30N	18E	4900							21B31	5	19N	11E	4000	
Tommy Creek	20B21lo	10	28N	18E								21B10SP	25	21N	11E	4700	
												21B30	18	19N	11E	3680	
												21B30	18	19N	11E	4100	
PUGET SOUND DRAINAGE																	
Entiat River												Paradise Park	21C35SP	13	15N	8E	5500
YAKIMA RIVER																	
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240							Gross Mountain No. 2	21B27	14	20N	8E	2900
Blewett Pass No. 2	20B22SP	35	22N	17E	4270							Gross Mountain No. 3	21B28	12	20N	8E	2100
Steven Pass	20B15SP	14	26N	13E	4670							Lester Creek	21B29	36	20N	10E	3100
Trough #2	20B23SP	10	20N	20E	5310							Lynn Lake	21B30	22	20N	8E	4000
												Sawmill Ridge	21B31	5	19N	11E	4700
												Stampede Pass	21B10SP	25	21N	11E	3680
												Twin Camp	21B30	18	19N	11E	4100
SQUILCHUCK CREEK																	
Beehive Springs	20B3	12	21N	19E	4400							Cedar River	21B3	10	21N	10E	2390
Stemilt Creek	20B6	30	21N	20E	5000							City Cabin	21B21P	30	22N	10E	3300
Stemilt Slide	20B7SP	30			4400							Alpine Meadow					
Upper Wheeler												Ollie Meadow	21B48	31	27N	9E	3500
												Ollie Meadows	21B22P	19	22N	11E	3625
												Ollie Meadows East	21B55SP	20	22N	11E	3700
YAKIMA RIVER																	
												Skagit River	21A4	35	39N	12E	2200
Atharum R. S.	21C11	24	12N	14E	3100							Beaver Creek Trail	21A1	9	39N	12E	3680
Big Boulder Creek	21B9SP	35	23N	14E	3200							Brown Top	21A28a	26	40N	12E	6000
Bumping Lake	21C36	13	16N	12E	3450							Devil's Park	20A4	34	38N	16E	5900
Bumping Lake New	21C38SP	9	15N	12E	4600							Freezeout Creek Trail	20A1	14	40N	14E	3500
Fish Lake	21B45SP	28	24N	14E	3371							Granite Creek	20A38	8	40N	16E	5000
Green Lake	21C10SP	3	12N	13E	6000							Freezeout Meadows (New)	20A06	25	36N	16E	3500
Grouse Camp	20B11SP	29	21N	19E	5385							Granite Creek	20A38	29	36N	14E	1900
Lake Cle Elum	21B14M	15	20N	14E	2200							Meadows Cabins	20A8	14	40N	14E	2800
Morse Lake	21C7SP	6	16N	11E	5400							New Hozomeen Lake	21A30	19	40N	14E	4200
Tunnel Avenue	21B8SP	13	21N	11E	2450							Thunder Basin	20A07	10	35N	14E	
White Pass (East Side)	21C28SP	2	13N	11E	4500												

LEGEND

21A7 Snow Course Only  
21A7a Aerial Marker Only  
21A7a Snow Course And Aerial Marker  
21A7m Snow Course And Soil Moisture Station  
21A7m Soil Moisture Station  
21A7p Snow Course And Precipitation Storage Gauge  
21A7p Precipitation Storage Gauge  
21A7p Snow Pillow

## WATER SUPPLY OUTLOOK

State of Washington

March 1, 1983

Water supplies are expected to be near average for most of Washington during this next spring and summer. The mountain snowpack is close to normal on almost all rivers and streams. Precipitation during February was generally heavier than normal except for Northwest Washington where it was near average. Reservoir storage is good with stored water at average to above average March 1 levels. Streamflow is expected to be good next summer.

### SNOW COVER

The snowpack is close to average on most Washington watersheds. The Snoqualmie, Green, and Cedar rivers have experienced considerable melt and runoff due to a high freezing level and rain. The snow cover is much below the March 1 average on all three streams. The best snowpack in the state is on Ahtanum Creek near Yakima where it is 148% of average. A snowcover near 120% of average exists on the Methow and Okanogan drainages. All other areas of the state are 80 to 120% of normal.

### PRECIPITATION

February was wetter than normal over the State of Washington except for the northwest side of the Cascades where it was near average. Percents of normal ranged from near 120% in Southwest Washington and on the east side of the Cascades to 185% in the north central part of the state. Warm temperatures caused much of this precipitation to fall as rain with subsequent above normal streamflow. Winter precipitation since November 1 has been near average to above average.

### RESERVOIR STORAGE

Reservoir storage is excellent for March 1. The Yakima reservoirs are currently holding 758,900 acre feet, 108% of average. Roosevelt Lake is 168%, and Lake Chelan is 99% of the normal level for this time of year. The storage in Ross Reservoir is 96% of average.

### STREAMFLOW

Streamflow during February was extremely good on most streams due to the above normal precipitation and warm temperatures. The flow was 206% on the Kettle, 145% on the Okanogan, 120% on the Yakima, 101% on the Cowlitz and 96% on the Skagit. Forecasts of spring and summer streamflow are 80 to 120% of average on most rivers. Exceptions are the Kettle at 124%, Colville at 131%, and the Cedar and Green rivers which will flow near 75% of normal.

STREAMFLOW FORECASTS - MARCH, 1983

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify the streamflow. The forecasts are a cooperative effort of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1982 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet						15-Yr. Average		
		% 15-Yr. Avg.	Fore- cast period	1982	1981	1980	63-77			
<u>COLUMBIA BASIN</u>										
<u>COLUMBIA RIVER SYSTEM</u>										
Columbia River at Birchbank 1/	44900 35900 25900	99 99 99	Apr-Sept Apr-July Apr-June	48531 38501 27002	40810 34081 27618	45510 36358 26197				
Columbia River at Grand Coulee 1/	66800 55900 43400	98 98 98	Apr-Sept Apr-July Apr-June	70303 58525 44235	61016 52320 43871	68026 57050 44280				
Columbia River bl. Rock Island Dam 1/	74700 63000 49000	101 101 101	Apr-Sept Apr-July Apr-June	77308 64689 49348	66512 57767 48667	73911 62444 48479				
Columbia River at The Dalles, OR 1/	105900 88900 71200	101 100 100	Apr-Sept Apr-July Apr-June	96188 81125 63521	91737 79919 68304	103477 88503 71219				
<u>PEND OREILLE RIVER SYSTEM</u>										
Pend Oreille River bl. Box Canyon	13300 12200 10435	85 85 85	Apr-Sept Apr-July Apr-June	13896 13179 11594	13271 12116 10776	15643 14334 12277				
<u>KETTLE RIVER SYSTEM</u>										
Kettle River nr. Laurier	2296 2214 2015	124 126 127	Apr-Sept Apr-July Apr-June	2184 2013 1657	1835 1747 1603	1845 1753 1587				
Colville River at Kettle Falls	176 162 152	131 132 132	Apr-Sept Apr-July Apr-June	125 111 94	116 105 97	134 123 115				

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore cast period	1982	1981	1980	15-yr. Average 63-77
<u>SPOKANE RIVER SYSTEM</u> **							
Spokane River at Post Falls, ID	2780 2672 2470	96 95 95	Apr-Sept Apr-July Apr-June	2238 2145 1960	2214 2046 1904	2910 2733 2600	
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River nr. Nighthawk	1520 1420 1192	100 100 100	Apr-Sept Apr-July Apr-June	1241 1118 930	1479 1391 1247	1517 1417 1192	
Okanogan River nr. Tonasket	1710 1560 1304	99 100 100	Apr-Sept Apr-July Apr-June	1631 1416 1107	1551 1423 1240	1718 1564 1304	
<u>METHOW RIVER SYSTEM</u>							
Methow River nr. Pateros	1240 1150 972	123 123 123	Apr-Sept Apr-July Apr-June	786 724 602	996 934 811	1011 937 791	
<u>CHELAN RIVER SYSTEM</u>							
Chelan River at Chelan 3/	1435 1274 992	116 118 119	Apr-Sept Apr-July Apr-June	916 798 621	1120 1020 859	1238 1080 834	
Stehekin River at Stehekin	983 863 652	111 116 117	Apr-Sept Apr-July Apr-June	662 543 403		883 744 557	
Entiat River nr. Ardenvoir	278 255 204	115 117 117	Apr-Sept Apr-July Apr-June	186 168 137	216 200 172	241 218 174	
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River at Plain	1409 1277 993	109 110 110	Apr-Sept Apr-July Apr-June			1297 1156 903	
Wenatchee River at Peshastin	1957 1771 1429	111 112 114	Apr-Sept Apr-July Apr-June	1188 1075 869	1516 1399 1208	1767 1586 1250	
Stemilt Basin nr. Wenatchee	138*	100	May-Sept			138*	
Icicle Creek nr. Leavenworth	380 362 304	102 106 109	Apr-Sept Apr-July Apr-June			371 342 279	

\* Thousands of Miners' Inches.

\*\* Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore cast period	1982	1981	1980	15-yr. Average 63-77
<b>YAKIMA RIVER SYSTEM</b>							
Yakima River nr. Martin <u>4/</u>	144 134 115	100 101 101	Apr-Sept Apr-July Apr-June	95 82 73	115 103 95	144 133 114	
Yakima River at Cle Elum <u>5/</u>	975 882 750	100 100 100	Apr-Sept Apr-July Apr-June	700 643 563	792 716 646	975 882 750	
Yakima River nr. Parker <u>6/</u>	2211 1993 1726	102 102 102	Apr-Sept Apr-July Apr-June	1194 1059 961	1833 1733 1610	2168 1954 1693	
Kachess River nr. Easton <u>7/</u>	126 121 107	100 102 104	Apr-Sept Apr-July Apr-June	81 72 66	111 105 91	126 119 103	
Cle Elum River nr. Roslyn <u>8/</u>	479 435 369	100 100 103	Apr-Sept Apr-July Apr-June	313 282 244	- 350 314	479 435 358	
Bumping River nr. Nile <u>9/</u>	160 150 121	110 114 114	Apr-Sept Apr-July Apr-June	78 70 63	129 120 111	146 132 106	
American River nr. Nile	144 133 112	113 115 118	Apr-Sept Apr-July Apr-June	140 130 109	63 58 51	121 105 114	127 116 95
Tieton River at Tieton Dam <u>10/</u>	284 246 195	113 116 116	Apr-Sept Apr-July Apr-June	148 131 108	224 192 166	252 212 168	
Naches River nr. Naches <u>11/</u>	952 887 759	107 110 112	Apr-Sept Apr-July Apr-June	419 380 339	729 694 638	893 806 678	
Ahtanum Creek nr. Tampico <u>12/</u>	60 54 47	128 128 128	Apr-Sept Apr-July Apr-June			47 42 37	

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr.	Fore cast	1982	1981	1980	15-yr. Average 63-77
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek at Walla Walla	17.50	100	Apr-Sept	24.62		11.65	17.50
	17.33	100	Apr-July	24.48		11.64	17.33
	17.15	100	Apr-June	21.63		11.64	17.15
Lewis River at Ariel <u>13/</u>	1348	104	Apr-Sept		1096	1001	1298
	1185	105	Apr-July		971	883	1128
	1046	105	Apr-June		865	798	992
Cowlitz River bl. Mayfield Dam	2100	99	Apr-Sept			1626	2126
	1830	99	Apr-July			1432	1854
	1537	99	Apr-June			1275	1553
Cowlitz River at Castle Rock	2830	102	Apr-Sept	2390	1976	2766	
	2460	102	Apr-July	2125	1852	2401	
	2070	102	Apr-June	1875	1649	2029	
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River nr. Sequim	173	108	Apr-Sept			160	
	146	112	Apr-July			130	
	108	112	Apr-June			96	
<u>ELWHA RIVER SYSTEM</u>							
Elwha River nr. Port Angeles	557	101	Apr-Sept			553	
	458	101	Apr-July			454	
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River at Newhalem <u>15/</u>	2100	95	Feb-Aug			2532	
	2206	94	Apr-Sept			2356	
	1850	94	Apr-July			1972	
	1443	97	Apr-June			1485	
<u>GREEN RIVER SYSTEM</u>							
Green River bl. Howard Hanson Dam <u>16/</u>	238	75	Apr-Sept			316	
	216	76	Apr-July			284	
	196	77	Apr-June			256	
<u>CEDAR RIVER SYSTEM</u>							
Cedar River nr. Cedar Falls	70	75	Apr-Sept			93	
	66	78	Apr-July			84	
	57	78	Apr-June			73	

13/ Observed flow corrected for storage in Lake Merwin, Yale, and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

**COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS**

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1983, as percent of the same date in 1982 and 1981 and average of record.

Tributary Basin	No. of Courses Average	1983 Snow Water Expressed as percent of 1982 1981 1963-77 Avg.		
		1982	1981	1963-77 Avg.

**UPPER COLUMBIA BASIN**

Pend Oreille	14	87	241	91
Kettle	10	116	183	116
Colville	1	112	-	109
Spokane	12	92	242	89
Okanogan	33	102	174	107
Methow	4	116	141	120
Chelan	5	81	157	102
Entiat	9	95	157	100
Wenatchee	9	80	238	91
Yakima	14	100	329	106
Ahtanum	2	142	288	148

**LOWER COLUMBIA**

Mill Creek	1	68	189	84
Cowlitz	2	94	357	110

**PUGET SOUND**

White	1	93	284	114
Cedar	1	28	-	30
Green	6	53	406	59
Snoqualmie	2	60	530	64
Skykomish	2	76	260	82
Skagit	16	80	270	82

**OLYMPIC PENINSULA**

Morse	1	96	467	110
Elwha	1	95	1016	95
Dungeness	1	96	470	121

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured March 1			
			1983	1982	1982	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	222.2	433.7	117.5	121.6
Columbia	Franklin D. Roosevelt Lake	5232.0	4470.7	4049.4	4813.9	2681.2
Columbia	Banks Lake	714.9	712.2	706.9	538.0	621.3
Okanogan	Conconully Reservoir	13.0	12.4	10.2	7.8	6.7
Okanogan	Conconully Lake	10.5	10.4	8.9	10.4	7.5
Chelan	Lake Chelan	676.1	233.3	269.4	437.3	235.5
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	100.3	121.8	143.4	105.4
Kachess	Kachess Lake	239.0	207.2	182.1	204.1	183.0
Cle Elum	Lake Cle Elum	436.9	309.6	118.7	267.3	280.2
Bumping	Bumping Lake	33.7	6.8	16.5	32.5	8.7
Tieton	Rimrock Lake	198.0	135.0	153.6	197.5	125.3
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	856.2	799.4	1287.6	894.0
Skagit	Diablo Reservoir	90.6	89.0	84.3	85.2	85.2
Skagit	Gorge Reservoir	9.8	8.4	7.6	8.0	8.1

1/ Based on Active Storage

\* 15-yr. Average 1963-1977

## PRECIPITATION 1/

## Division Average Observations and Departures

Drainage Divisions	FALL			WINTER		
	Sept-Oct Observed	1982 Departure	2/	Nov. 1982 - Observed	Feb. 1983 Departure	2/
Columbia in Canada	5.40	+0.38		11.24	-2.32	
Pend Oreille - Spokane	4.85	+0.81		15.48	+0.46	
Northeastern Washington	2.73	+0.25		11.07	+2.96	
Southeastern Washington	4.19	+1.68		9.04	+0.27	
East Slope Cascades	6.27	+1.52		27.39	+3.19	
North Central Washington	2.35	+0.76		7.42	+1.64	
Northwest Slope Cascades	12.32	-0.89		43.66	-3.44	
Southwest Slope Cascades	10.16	+1.48		37.15	+1.67	

Northeastern Washington

- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.

Southeastern Washington

- Touchet, Tucannon, and Palouse Drainages.

East Slope Cascades

- Yakima, Wenatchee and Chelan Drainages.

North Central Washington

- Methow and Okanogan Drainages.

Northwest Slope Cascades

- Puget Sound Drainages.

Southwest Slope Cascades

- Lower Columbia Drainages.

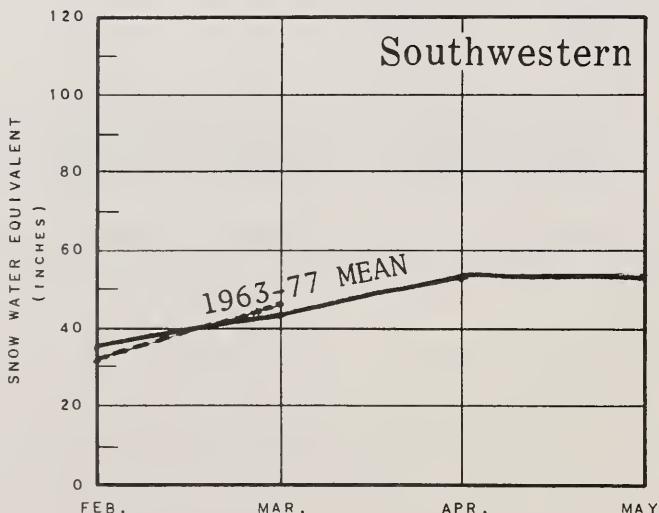
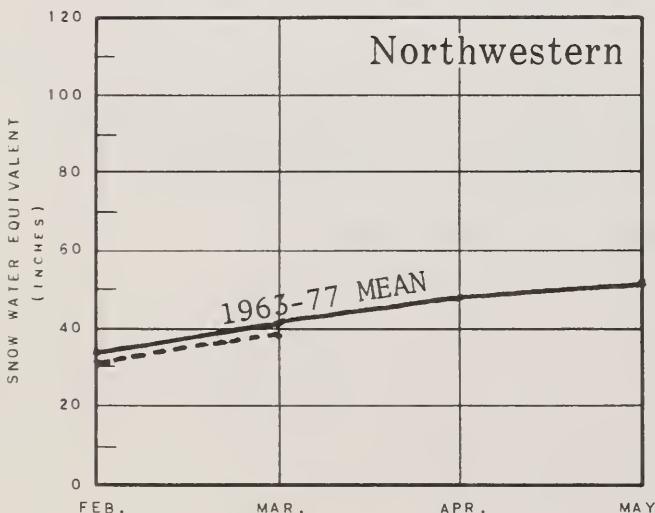
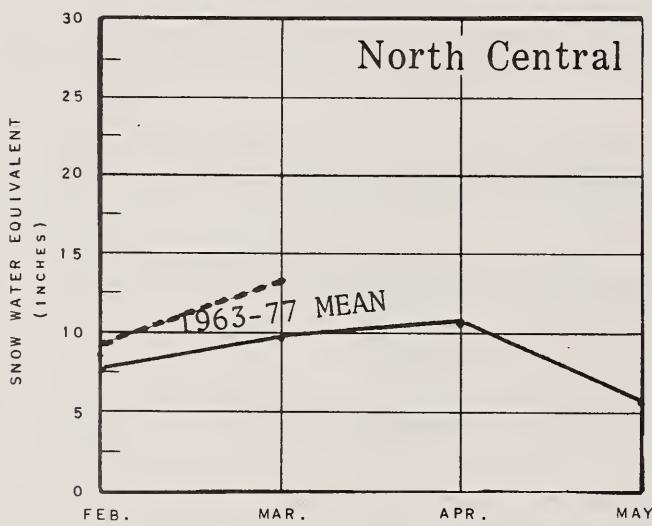
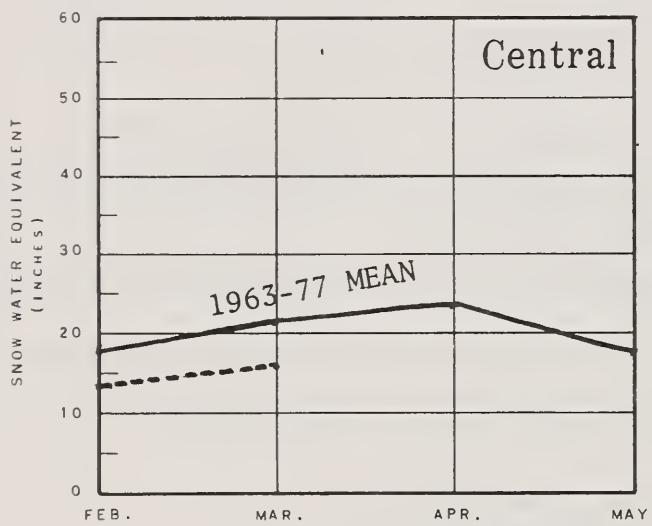
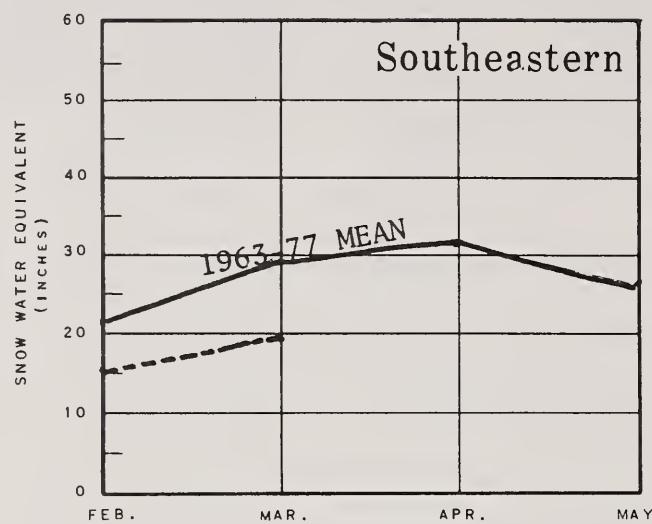
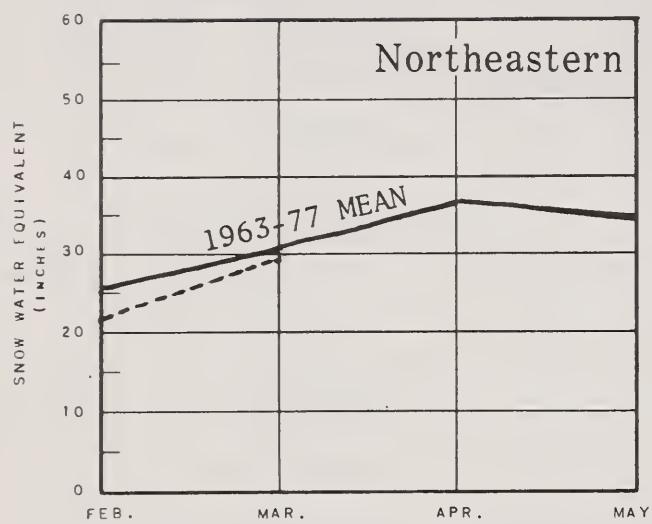
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

# WASHINGTON SNOW COVER

1983

## DRAINAGE AREAS



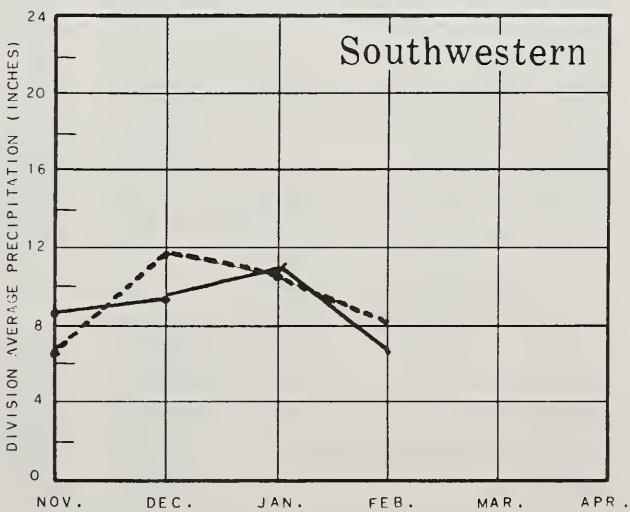
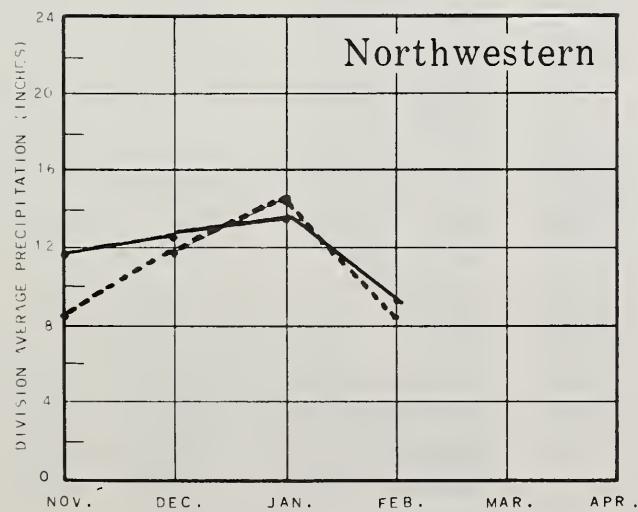
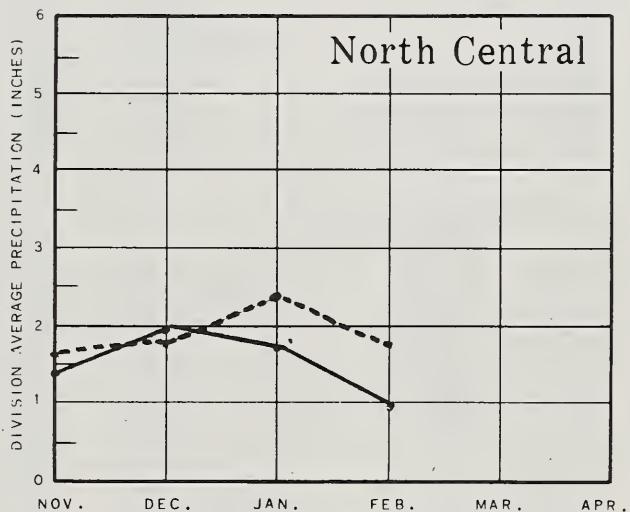
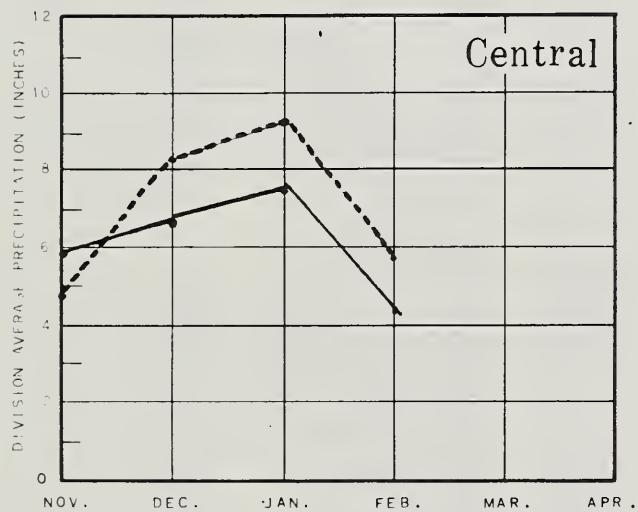
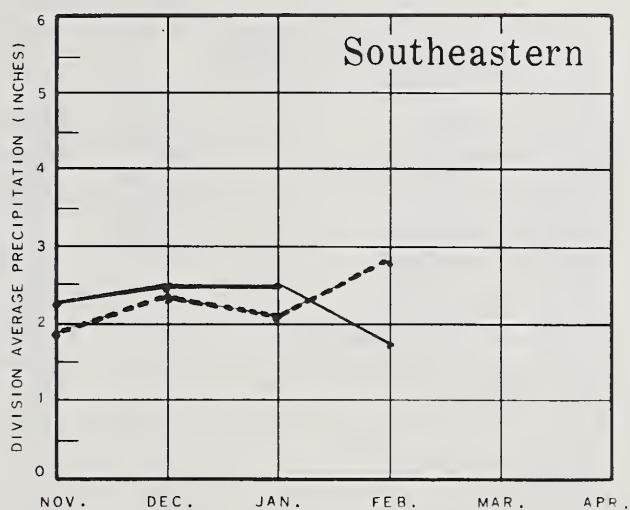
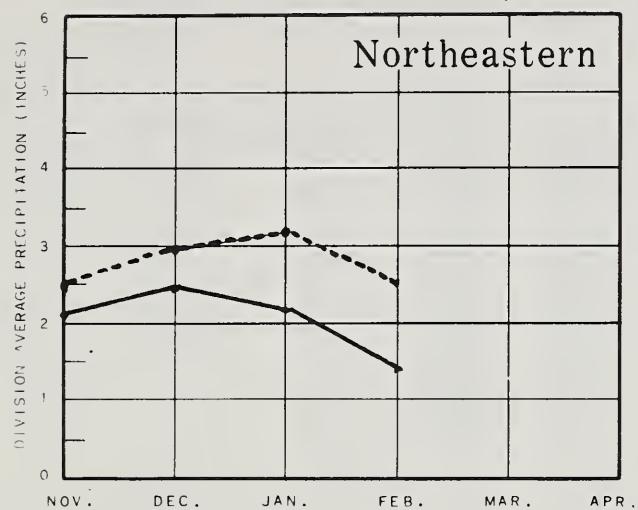
Average  
1983

Selected Snow Survey Courses by Soil Conservation Service

# WASHINGTON VALLEY PRECIPITATION

1983

## DRAINAGE AREAS



Average  
1983

Preliminary Analysis by National Weather Service

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 1

SNOW	THIS YEAR			PAST RECORD	
	DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	Snow Depth (Inches)	Water Content (Inches)
	NAME	Number			

## U P P E R C O L U M B I A D R A I N A G E

## PEND OREILLE RIVER

Baree Creek	15B11	5500	2/24	97	38.9	45.4	43.8
Baree Midway	15B16	4600	2/24	83	30.6	34.1	34.0
Baree Trail	15B15	3800	2/24	14	4.8	8.6	10.0
Benton Meadow	16A02	2344	2/25	10	2.5	7.4	6.4
Benton Spring	16A03	4900	2/25	53	19.3	15.8	17.7
Boyer Mountain	17A02	5250	2/24	73	26.6	20.2	23.1
Brush Creek Timber	14A13	5000	2/28	28	7.5	10.0	9.5
Bunchgrass Meadow	17A01	5000	2/25	89	32.3	-	-
Chewelah	17A04	4923		Discontinued		13.1	14.3
Heart Lake Trail	14C10	4800	2/26	43	15.4	20.8	21.1
Hoodoo Basin	15C10	6000	2/26	111	40.4	49.9	45.4
Hoodoo Creek	15C01	5900	2/26	105	36.6	47.5	42.0
Lookout	15B02	5250	2/28	80	29.0	30.6	31.0
Mosquito Ridge	16A04A	5100	2/27	115	40.4	38.3	34.6
Nelson	2D04-Can	3050	2/25	48	16.1	16.1	14.3*
Schweitzer Bowl	16A06	4500	3/1	90	34.5	31.2	28.1
Schweitzer Ridge	16A05	6100	3/1	123	49.0	44.6	40.3
Winchester Creek	17A03	2970		Discontinued		9.3	10.6

## KETTLE RIVER

Barnes Creek	2B06-Can	5300	2/24	50	15.7	19.1	17.3*
Big White Mtn.	2E03-Can	5500	2/27	65	20.4	18.1	17.0*
Boulder Road	18A02	1450		Discontinued		4.0	4.5
Butte Creek	18A03	4070	2/26	38	11.3	7.5	8.5
Cabin Creek	18A08	3170		Discontinued		7.1	7.2
Carmi	2E02-Can	4100	2/27	29	7.7	5.6	6.1*
Farron # 1	2B02-Can	4000	2/28	56	15.6	12.5	12.1*
Farron # 2	2B02A-Can	4000	2/28	55	15.2	12.8	11.4*
Goat Creek	18A04	3595		Discontinued		6.4	6.4
Graystoke Lake	2F04-Can	5950	3/1	45	13.9	12.0	14.1*
Monashee Pass	2E01-Can	4500	2/24	36	11.7	13.6	12.4*
Snow Caps Creek	18A05	2150		Discontinued		4.4	4.8
Snow Caps Trail	18A06	2720		Discontinued		5.9	5.8
Summit G.S.	18A07	4600	2/26	27	8.1	6.4	7.3
Trapping Creek Lower	2E05-Can	3050	2/26	21	5.7	5.0	5.1*
Trapping Creek Upper	2E04-Can	4450	2/26	39	10.4	10.2	9.1*

## COLVILLE RIVER

Baird	17A06	3215	2/26	24	7.3	6.5	6.7
Carlson	18A09	2885		Discontinued		0.0	4.2
Chewelah	17A04	4925		Discontinued		13.1	14.3
Stranger Mountain	17A05	4990		Discontinued		10.4	12.5
Togo	18A10	3370		Discontinued		9.2	10.3

# Average based on 1963-77 average

\* Average for years of record

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #
<u>SPOKANE RIVER</u>								
Above Burke	15B08	6100	2/28	40	15.4	18.1	22.9	
Copper Ridge	16B02	4800	2/25	61	25.6	25.2	25.1	
Forty-nine Meadows	15B03	5000	3/1	71	22.0	23.8	27.2	
Fourth of July Summit	16B03	3100	2/28	17	5.4	6.4	8.9	
Kellogg Peak	16B05A	5560	2/27	66	25.7	27.3	28.2	
Lookout	15B02	5250	2/28	80	29.0	30.6	31.0	
Lost Lake	15B14A	6000	3/1	132	41.4	49.7	50.0	
Lower Sands Creek	16B01	3400	2/28	44	17.0	15.2	17.5	
Mosquito Ridge	16A04A	5110	2/27	115	40.4	38.3	34.6	
Roland Summit	15B05A	5200	2/27	71	31.5	30.0	31.3	
Sherwin	16C01	3200	2/23	27	8.4	14.2	13.3	
Sunset	15B09A	5600	2/27	101	35.5	39.1	32.6	
<u>NEWMAN LAKE</u>								
Ragged Ridge	17B02	3333	2/27	10	2.8	2.6	New	
<u>OKANOGAN RIVER</u>								
Aberdeen Lake	1F01A-Can	4300	2/28	30	7.6	7.4	6.0*	
Blackwall Mountain	2G03-Can	6250	2/28	79	28.0	32.0	30.7*	
Bouleau Lake	2F21-Can	4580	2/26	52	14.0	14.6	12.0*	
Brenda Mine	2F18-Can	4800	2/25	38	13.0	11.1	12.2*	
Brookmere	1C01-Can	3200	2/28	24	6.7	9.2	8.8*	
Enderby	1F04-Can	6250	2/28	109	37.1	45.7	31.8*	
Esperon Creek Lower	2F15-Can	4400	2/27	46	13.5	11.5	10.4*	
Esperon Creek Middle	2F14-Can	4700	2/27	51	15.3	13.9	13.0*	
Esperon Creek Upper	2F13-Can	5400	2/27	55	18.1	16.1	15.6*	
Grayback Reservoir	2F08-Can	5225	2/25	33	8.9	5.8	7.8*	
Graystoke Lake	2F04-Can	5950	3/1	45	13.9	12.0	14.1*	
Hamilton Hill	2G06-Can	4900	2/25	35	10.6	12.2	14.1*	
Harts Pass	20A05A	6500	2/25	116	39.3	40.7	41.1	
Horseshoe Basin	19A05a	7000		Discontinued		16.8	16.3	
Isintok Lake	2F11-Can	5510	2/26	24	5.5	7.1	7.4*	
Lightning Lake	3D02-Can	4000	2/24	33	10.2	13.4	9.9*	
Lost Horse Mountain	2G04-Can	6300	2/28	33	8.0	7.3	8.3*	
Loup Loup	19A07	4650		Discontinued		9.8	8.8	
McCulloch	2F03-Can	4200	2/28	24	6.8	7.0	6.3*	
Missezula Mountain	2G05-Can	5100	2/23	29	7.9	8.7	8.8*	
Mission Creek	2F05-Can	6000	3/1	60	18.8	18.9	17.0*	
Monashee Pass	2E01-Can	4500	2/24	36	11.7	13.6	12.4*	
Mount Kobau	2F12-Can	5950	2/27	50	13.5	12.1	10.6*	
Muckamuck	19A09a	6390		Discontinued		18.6	14.7	
Mutton Creek No. 1	19A01	5700	2/22	52	16.1	15.2	12.7	
Mutton Creek No. 2SP	19A11	6000		Not Measured		7.8	10.0	
Nickel Plate Mtn.	2G02-Can	6200	2/27	22	6.5	7.1	7.2*	
Oyama Lake	2F19-Can	4400	2/27	30	8.0	6.3	6.3*	

# Average based on 1963-77 average

\* Average for years of record

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (inches)	Water Content (inches)	Water Content (inches)	Last Year
						Average <sup>#</sup>	

OKANOGAN RIVER (Cont.)

Paysayten	20A28a	4300		Discontinued	16.5	16.9	
Postill Lake	2F07-Can	4500	2/28	34	8.3	8.0	7.4*
Rusty Creek	19A03	4000	2/23	28	7.4	6.1	6.6
Salmon Meadows	19A02	4500	2/22	45	13.2	9.6	9.1
Silver Star Mountain	2F10-Can	6050	2/27	87	29.1	28.7	23.8*
Starvation Mountain	19A10a	6750		Discontinued	16.8	17.5	
Summerland Reservoir	2F02-Can	4200	2/27	31	9.1	9.4	8.8*
Sunday Summit	2G01A-Can	4300	2/24	14	3.1	5.9	5.6*
Touts Coulee	19A06	2845		Discontinued	3.6	3.5	
Trout Creek	2F01-Can	4700	2/26	22	6.5	6.8	6.5*
Vaseux Creek	2F20-Can	4600	2/28	30	7.5	6.0	6.0*
White Rocks Mountain	2F09-Can	6000	2/25	69	23.3	21.5	19.3*

METHOW RIVER

Billy Goat Pass	20A10a	6409		Discontinued		31.3	
Dollar Watch	20A29a	7000		Discontinued		27.0	
Harts Pass	20A05A	6500	2/26	116	39.3	40.7	41.1
Horseshoe Basin	19A05a	7000		Discontinued		16.8	16.3
Loup Loup	19A07	4650		Discontinued		9.8	8.8
Mutton Creek No. 1	19A01	5700	2/22	52	16.1	15.2	12.7
Mutton Creek No. 2SP	19A11	6000		Not Measured		7.8	10.0
Rusty Creek	19A03	4000	2/23	28	7.4	6.1	6.6
Salmon Meadows	19A02	4500	2/22	45	13.2	9.6	9.1
War Creek Pass	20A31a	6500		Discontinued		39.6	42.9

CHELAN LAKE BASIN

Cloudy Pass +	20A22a	6500		Not Measured	-	35.0	
Greenwood Flat	20A25a	3540		Discontinued		20.8	
Little Meadows +	20A24a	5275	3/4	94	37.6	53.4	37.6
Lyman Lake	20A23A	5900	3/4	145	59.0	63.7	49.8
Mirror Lake	20A39	5600	3/4	91	33.0	38.7	New
Park Creek Flat	20A13a	2220		Discontinued		31.5	
Park Creek Ridge	20A12A	4600	3/4	112	45.5	59.7	44.2
Petersons	20A16a	3730		Discontinued		34.2	
Rainy Pass	20A09	4780	2/27	95	33.0	39.6	37.0
Safety Harbor	20A30A	6300		Discontinued		26.6	
War Creek Pass	20A31a	6500		Discontinued		39.6	42.9

ENTIAT RIVER

Blue Creek G.S.	20B28a	5425		Discontinued	43.6	33.8	
Brief	20B19	1600	2/28	22	7.0	9.0	7.5
Entiat Meadows +	20A33a	4540	3/5	126	44.7	45.5	57.7
Entiat River Trail +	20A34a	3325	3/5	68	23.1	24.9	25.6
Four Mile Ridge +	20B27a	6800		Discontinued	31.7	28.4	
Fox Camp +	20A36a	6510	3/5	176	62.5	-	52.9

+ Snow water equivalent estimated from aerial stadia observation

# Average based on 1963-77 average

\* Average for years of record

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

ENTIAT RIVER (Cont.)

Pope Ridge	20B20	3540	2/28	57	19.3	20.6	18.2
Pugh Ridge +	20A32a	6725	3/5	107	38.0	36.0	40.8
Shady Pass	20A37	6200	2/28	80	28.2	30.4	23.7
Snow Brushy +	20A35a	3910	3/5	111	37.7	41.5	35.8
Tommy Creek +	20B21a	4900	2/27	76	27.0	25.1	26.5

WENATCHEE RIVER

Berne-Mill Creek	21B23	2925	2/28	60	23.7	31.0	26.0
Berne-Mill Creek New	21B41	3240	2/28	55	22.1	27.8	24.0
Blewett Pass No. 2	20B02	4270	3/2	52	15.5	16.4	15.0
Chiwaukum G.S.	20B16	1810	2/28	32	11.5	12.6	11.6
Fish Lake	21B04	3371		SNOTEL SITE	40.4	31.1	
Lake Wenatchee	20B05	1970	2/28	32	11.3	16.5	14.4
Lyman Lake	20A23A	5900	3/4	145	59.0	63.7	49.8
Merritt	20B18	2140	2/28	31	12.0	18.2	15.8
Stevens Pass	21B01	4070	2/28	100	38.8	49.0	48.0
Stevens Pass Sand Shed	21B45	3700	2/28	72	28.6	38.4	34.9

SQUILCHUCK CREEK

Beehive Springs	20B03	4400	2/24	29	9.5	6.3	8.1
Scout-A-Vista	20B04	3400	2/24	31	9.3	8.2	8.2

STEMILT CREEK

Jump-Off	20B08	4450		Discontinued		9.2	8.4
Stemilt Slide	20B06	5000	2/24	51	16.0	13.3	13.1
Upper Wheeler	20B07	4400		SNOTEL SITE		8.6	9.7

COLOCKUM CREEK

Colockum Creek Upper	20B22	5300		Discontinued		11.7	13.3
Colockum Creek Lower	20B23	4300		Discontinued		8.5	10.1
Trough # 2	20B25	5310	3/1	54	17.0	14.0	New

YAKIMA RIVER

Ahtanum R.S.	21C11	3100	2/24	33	10.5	6.9	6.7
Big Boulder Creek	21B09	3200	3/1	47	17.8	25.1	19.3
Blewett Pass No. 2	20B02	4270	3/2	52	15.5	16.4	15.0
Bumping Lake	21C08	3450	2/11	58	15.4	8.8	14.8
			2/25	49	17.9	12.5	20.4
Bumping Lake New	21C36	3400	2/11	66	18.9	16.5	18.5
			2/25	59	19.5	17.8	20.2
Cayuse Pass	21C06	5300	3/3	-	81.0	86.9	71.0
Colockum Pass	20B09	5370	3/4	59	22.0	15.9	14.2

+ Snow water equivalent estimated from aerial stadia observation

# Average based on 1963-77 average

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (inches)	Water Content (inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

YAKIMA RIVER (Cont.)

Cooke Creek	20B10	4123		Discontinued	4.5	5.7
Corral Pass	21B13	6000		SNOTEL SITE	-	35.1
Fish Lake	21B04	3371		SNOTEL SITE	40.4	31.1
Green Lake	21C10	6000	2/24	102 41.3	31.3	29.6
Grouse Camp	20B11	5385	3/4	65 26.0	18.9	15.5
High Creek	20B12	2930		Discontinued	6.1	6.1
Joe Lake	21B46a	4624		Discontinued	76.1	53.5
Lake Cle Elum	21B14	2200	2/14	17 6.6	11.6	10.5
			2/23	15 5.6	12.7	9.2
Lemah Creek	21B47a	3327		Discontinued	51.6	41.9
Manashtash	20C01	3935		Discontinued	4.3	4.3
Morse Lake	21C17	5400		SNOTEL SITE	57.7	47.2
Nanum	20B13	3875		Discontinued	5.6	9.8
Ollallie Meadows	21B02	3625	2/28	58 24.1	44.1	44.8
Satus Pass	20D01	4030		Discontinued	7.4	9.1
Stampede Pass	21B10	3860	2/14	84 33.2	48.1	36.2
			2/28	82 34.8	51.4	35.7
Trail Creek	20B14	3360		Discontinued	0.0	2.6
Tunnel Avenue	21B08	2450	2/15	44 15.4	20.5	21.4
			2/28	39 15.4	24.9	21.6
Van Epps Pass	20B26a	5925		Discontinued	-	43.0
Walters Flat	20B15	3360		Discontinued	6.6	7.1
Waptus Lake	21B49a	3024		Discontinued	50.3	41.4
White Pass (E. Side)	21C28	4500	2/10	67 20.4	24.2	21.0
					25.7	23.1

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	2/24	33	10.5	6.9	6.7
Green Lake	21C10	6000	2/24	102	41.3	31.3	29.6

LOWER COLUMBIA DRAINAGEASOTIN CREEK

Spruce Springs	17C04	5700		Discontinued	22.9	22.6
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MILL CREEK

Homestead	17C01	4030		Discontinued	10.6	8.2
Martin Springs	17C02	4400		Discontinued	15.2	12.1
High Ridge	18D19	4150	2/28	72 24.7	36.1	29.4

KLICKITAT RIVER

Status Pass	20D01	4030		Discontinued	7.4	9.1
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# Average based on 1963-77 average

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	THIS YEAR		PAST RECORD	
NAME	Number	Elevation		Snow Depth (inches)	Water Content (inches)	Water Content (inches)	Last Year

COWLITZ RIVER

Cayuse Pass	21C06	5300	3/3	-	81.0	86.9	71.0
White Pass (E. Side)	21C28	4500	2/10	67	20.4	24.2	21.0

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	3/3	-	81.0	86.9	71.0
Corral Pass	21B13	6000		SNOTEL SITE		-	35.1
Morse Lake	21C17	5400		SNOTEL SITE		57.7	47.2

GREEN RIVER

Airstrip	21B24	1800	2/28	0	0.0	2.0	5.1
Charley Creek	21B25	1200	2/28	0	0.0	0.0	1.2
Cougar Mountain	21B42	3200		SNOTEL SITE		22.8	20.9
Grass Mtn. No. 2	21B27	2900	2/28	10	3.0	11.2	19.1
Grass Mtn. No. 3	21B28	2100	2/28	0	0.0	3.2	5.7
Lester Creek	21B29	3100	2/28	37	12.6	19.6	21.7
Lynn Lake	21B50	4000	2/28	18	5.8	22.7	18.7
Sawmill Ridge	21B31	4700	2/28	63	23.0	32.8	33.7
Snowshoe Butte	21B43	5000		Discontinued		54.8	52.7
Stampede Pass	21B10	3860	2/15	84	33.2	48.1	36.2
			2/28	82	34.8	51.4	35.7
Twin Camp	21B30	4100	2/28	50	18.2	28.8	22.3

CEDAR RIVER

City Cabin	21B03	2390	2/24	0	0.0	14.1	17.2
Mt. Gardner	21B21	3300	2/24	12	5.7	20.1	18.7

SNOQUALMIE RIVER

Alpine Meadow	21B48	3500	2/25	67	30.8	48.3	41.2
Olallie Meadows	21B02	3625	2/28	58	24.1	44.1	44.8

SKYKOMISH RIVER

Stevens Pass	21B01	4070	2/28	100	38.8	49.0	48.0
Stevens Pass Sand Shed	21B45	3700	2/28	72	28.6	38.4	34.9

SKAGIT RIVER

Beaver Creek Trail	21A04	2200	2/26	31	10.9	16.7	14.9
Beaver Pass	21A01	3680	2/26	76	28.9	33.4	28.7
Brown Top Ridge +	21A28a	6000	2/26	140	50.6	58.2	61.2
Cloudy Pass +	20A22a	6500		Not Measured		-	35.0
Devils Park	20A04	5900	2/26	107	36.8	41.8	41.3

# Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

## SNOW DATA TO MARCH 1, 1983 - APPENDIX 7

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>+</sup> #

SKAGIT RIVER (Cont.)

Freezeout Creek Trail	20A01	3500	2/27	32	12.0	14.2	12.7
Freezeout Meadows New	20A38	5000	2/27	88	35.7	28.4	42.5
Granite Creek	21A29A	3500	2/27	49	17.0	18.8	19.2
Harts Pass	20A05A	6500	2/26	116	39.3	40.7	41.1
Klesilkwa	3D03A-Can	3700	2/25	23	8.1	-	12.0*
Lightning Lake	3D02-Can	4000	2/24	33	10.2	13.4	9.9*
Lyman Lake	20A23A	5900	3/4	145	59.0	63.7	49.8
Meadow Cabins	20A08	1900	2/26	2.9	1.2	8.1	7.4
New Hozomeen Lake	21A30	2800	2/27	28	10.0	11.3	14.2
New Tashme	3D01A-Can	2500	3/2	17	4.6	11.8	10.8
Rainy Pass	20A09	4780	2/27	95	33.0	39.6	37.0
Thunder Basin	20A07	4200	2/27	57	18.2	22.2	20.9

BAKER RIVER

Dock Butte	21A11A	3800		Not Measured	70.0	64.2
Easy Pass	21A07A	5200		Not Measured	79.0	71.3
Jasper Pass	21A06A	5400		Not Measured	98.0	82.5
Marten Lake	21A09A	3600		Not Measured	80.0	71.8
Mount Blum +	21A18a	5800		Not Measured	74.0	62.1
Panorama New	21A26	4300		Not Measured	-	66.0
Rocky Creek	21A12A	2100		Not Measured	40.0	30.4
Schreibers Meadow	21A10A	3400		Not Measured	68.0	54.5
S. F. Thunder Creek	21A14A	2200		Not Measured	14.0	11.7
Watson Lakes	21A08A	4500		Not Measured	64.0	60.9

OLYMPIC PENINSULADUNGENESS RIVER

Deer Park	23B04	5200	2/28	57	22.1	23.1	18.3
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MORSE CREEK

Cox Valley	23B14	4500	2/25	97	40.2	41.8	36.5
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ELWHA RIVER

Hurricane	23B03	4500	2/26	54	19.3	20.3	20.3
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+ Snow water equivalent estimated from aerial stadia observation

# Average based on 1963-77 average

\* Average for years of record

## SNOWMELT READINGS, 1983 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average +
<u>PEND OREILLE RIVER</u>							
Bunchgrass Meadow	17A01	5000	2/16		27.8	16.8	
			3/1		32.2	20.8	
		GT	2/25	89	32.3 (31.2)		
<u>OKANOGAN &amp; METHOW RIVERS</u>							
Harts Pass	20A05	6500	2/15		33.3	-	
			3/1		38.8	-	
		GT	2/26	116	39.3 (38.0)		
Salmon Meadow	19A02	4500	2/15		-	10.3	
			3/1		28.0	13.9	
		GT	2/22	45	13.2 (-)		
<u>CHELAN LAKE BASIN</u>							
Lyman Lake	20A23	5900	2/15		44.4	-	
			3/1		54.2	-	
		GT	3/4	141	56.3 (55.1)		
Mirror Lake	20A39	5600	2/15		-	-	
			3/1		-	-	
		GT	3/4	93	34.5 (-)		
Park Creek Ridge	20A12	4600	2/16		36.0	42.3	
			2/28		41.2	47.9	
		GT	3/4	112	45.5 (-)		
Rainy Pass	20A09	4780	2/15		32.5	-	
			2/28		39.3	-	
		GT	2/27	95	33.0 (38.0)		
<u>ENTIAT RIVER</u>							
Pope Ridge	20B20	3450	2/15		16.5	18.6	
			3/1		18.7	19.7	
		GT	2/28		18.4 (18.4)		
<u>WENATCHEE RIVER</u>							
Blewett Pass	20B02	4270	2/15		17.2	17.1	
			3/1		19.1	18.2	
		GT	3/2	52	15.5 (19.3)		
Lyman Lake	20A23	5900	2/15		44.4	-	
			3/1		54.2		
		GT	3/4	141	56.3 (55.1)		
Stevens Pass	21B01	4070	2/15		20.7	33.7	
			3/1		22.7	34.0	
		GT	2/28	84	34.1 (22.7)		
Trough # 2	20B25	5310	2/15		16.5	12.1	
			2/28		21.1	15.6	
		GT	3/1	54	17.0 (-)		

GT = Ground Truth measurement at SNOTEL site  
 NOTE: () following Ground Truth Measurement is SNOTEL reading on same date.

## SNOW READINGS, 1983 - APPENDIX 2

SNOW	THIS YEAR				PAST RECORD		
	DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	Snow Depth (inches)	Water Content (inches)	Water Content (inches)	
	NAME	Number				Last Year	Average +
<u>COLOCKUM CREEK</u>							
Trough # 2	20B25	5310	2/15		16.5	12.1	
			2/28		21.1	15.6	
		GT	3/1	54	17.0	(-)	
<u>STEMILT CREEK</u>							
Upper Wheeler	20B07	4400	2/15		25.1	21.1	
			3/1		29.1	23.9	
		GT	3/2	51	14.5 (29.4)		
<u>YAKIMA RIVER</u>							
Big Boulder Creek	21B09	3200	2/15		28.8	26.9	
			3/1		19.2	27.7	
		GT	3/1	53	19.6 (19.2)		
Bumping Ridge	21C38	4600	2/15		-	-	
			3/1		-	-	
Corral Pass	21B13	6000	2/15		25.7	34.9	
			3/1		28.6	38.5	
Fish Lake	21B04	3371	2/15		-	-	
			3/1		-	-	
		GT	3/1	73	31.0 (-)		
Green Lake	21C10	6000	2/15		23.5	21.2	
			3/1		26.8	24.2	
		GT	2/24	102	41.3 (26.2)		
Grouse Camp	20B11		2/15		18.1	-	
			3/1		21.6	-	
Morse Lake	21C17	5400	2/16		56.5	53.1	
			3/1		64.0	60.5	
White Pass (E.S.)	21C28	4500	2/15		21.0	25.1	
			3/1		24.7	26.5	
		GT	3/3	66	20.5 (24.9)		
<u>AHTANUM CREEK</u>							
Green Lake	21C10	6000	2/15		23.5	21.2	
			3/1		26.8	24.2	
		GT	2/24	102	41.3 (26.2)		
<u>TOUCHET RIVER</u>							
Touchet # 2	17C55	5530	2/15		27.0	41.0	
			3/1		31.6	44.9	
		GT	2/15	74	21.5 (27.0)		

GT = Ground Truth Measurement at SNOTEL site

NOTE: ( ) following GT measurement is SNOTEL reading on same date.

## SNOWMELT READINGS, 1983 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (inches)	Water Content (inches)	Last Year	Average +
<u>LEWIS RIVER</u>							
June Lake	22C09	3200	2/15	30.0	31.2		
			3/1	30.9	25.5		
Lone Pine Shelter	21C26	3800	2/15	33.2	40.8		
			3/1	37.4	45.0		
Plains of Abraham	22C01	4400	2/15	-	-		
			3/1	-	-		
Sheep Canyon	22C10	4050	2/15	-	34.8		
			3/1	-	-		
Spencer Meadow	21C20	3400	2/15	26.6	-		
			3/1	28.7	-		
Surprise Lakes	21C13	4250	2/15	42.0	47.8		
			3/1	46.4	53.5		
<u>COWLITZ RIVER</u>							
Pigtail Peak	21C33	5900	2/15	39.8	-		
			3/1	44.9	52.1		
Potato Hill	21C14	4500	2/15	-	-		
			3/1	-	-		
Sheep Canyon	22C10	4050	2/15	-	34.8		
			3/1	-	-		
Strawberry Landing	22C08	3280	2/15	30.3	56.2		
			3/1	32.8	58.7		
<u>NISQUALLY RIVER</u>							
Paradise Park	21C35	5500	2/15	-	-		
			3/1	-	-		
<u>WHITE RIVER</u>							
Corral Pass	21B13	6000	2/15	25.7	34.9		
			3/1	28.6	38.5		
Morse Lake	21C17	5400	2/15	56.5	53.1		
			3/1	64.0	60.5		
<u>GREEN RIVER</u>							
Cougar Mtn.	21B42	3200	2/15	7.2	24.9		
			3/1	5.3	23.5		
Stampede Pass	21B10	3860	2/15	30.2	48.0		
			3/1	33.9	-		
			GT	78	33.8 (34.0)		
<u>SNOQUALMIE RIVER</u>							
Olallie Meadows East	21B55	3960	2/15	41.0	-		
			3/1	44.2	-		

GT = Ground Truth measurement at SNOTEL site

NOTE: () following GT measurement is SNOTEL reading on same date.



# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

### Canada:

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

### States:

Washington State Department of Ecology  
Washington State Department of Natural Resources

### Federal:

Department of the Army  
Corps of Engineers  
U. S. Department of Agriculture  
Forest Service  
U. S. Department of Commerce  
NOAA, National Weather Service  
U. S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District  
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma  
City of Seattle

*Other organizations and individuals furnish valuable information for  
snow survey reports. Their cooperation is gratefully acknowledged.*

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